

Patent claims

1. Internal high-pressure shaping method for shaping conical tubes made of metal, in particular steel, in a tool comprising a die cavity having a complex contour and two sealing pistons, by means of which the interior of the tube to be shaped is sealed at its two ends, in that the sealing pistons, which engage with the tube ends, press the tube ends against the wall of cylindrical portions at the two ends of the die cavity, characterised in that a tube, which is conical over its entire length and the ends of which protrude into the region of the cylindrical portions of the tool, is inserted into the tool, in that these conical ends of the tube are pressed by the sealing pistons to be introduced until they abut the portions, and in that the internal high-pressure shaping process then takes place by means of internal high pressure built up in the interior thus sealed of the tube, with simultaneous axial compression of the tube by means of at least one sealing piston acting on the end face of the associated tube end.
2. Method according to Claim 1, characterised in that during the compression process at least one of the cylindrically flared tube ends is displaced up to the end of the associated cylindrical portion.

Amended pages 2, 2a (Description)

the cylindrical portions of the tool, is inserted into the tool, in that these conical ends of the tube are pressed by the sealing pistons to be introduced until they abut the cylindrical portions of the tool, optionally with radial flaring, and in that the internal high-pressure shaping process then takes place by means of internal pressure built up in the interior thus sealed of the tube, with simultaneous axial compression of the tube by means of at least one sealing piston acting on the end face of the associated tube end, wherein during the compression process at least one of the cylindrically flared tube ends is displaced up to the end of the associated cylindrical portion.

The object of the invention is to provide an internal high-pressure shaping method for shaping conical tubes, which allows high degrees of shaping of complex shapes and necessitates lower costs than the described method.

In the case of a method of the type mentioned at the outset, this object is achieved in that a tube, which is conical over its entire length and the ends of which protrude into the region of the cylindrical portions of the tool, is inserted into the tool, in that these conical ends of the tube are pressed by the sealing pistons to be introduced until they abut the cylindrical portions of the tool, optionally with radial flaring, and in that the internal high-pressure shaping process then takes place by means of internal pressure built up in the interior thus sealed of the tube, with simultaneous axial compression of the tube by means of at least one sealing piston acting on the end face of the associated tube end, wherein during the compression process at least one of the cylindrically flared tube ends is displaced up to the end of the associated cylindrical portion.

In the case of the method according to the invention, the purely conical tube that is to undergo internal high-pressure shaping is introduced into a tool of conventional configuration, wherein the

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AMENDED SHEET (ARTICLE 19)